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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,742	12/13/2001	Kishor P. Gadkaree	SP01-337	9693
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CORNING INCORPORATED				
SP-TI-3-1				
CORNING, NY 14831				
			EXAMINER	
			GREENE, JASON M	
			ART UNIT	PAPER NUMBER
			1724	

DATE MAILED: 11/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/020,742	GADKAREE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jason M. Greene	1724	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 August 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Amendment***

### ***Response to Arguments***

1. Applicant's arguments filed 25 August 2003 have been fully considered but they are not persuasive.

With regard to Applicants' arguments regarding the Gadkaree et al. reference, the Examiner agrees with Applicants that Gadkaree et al. teaches the preferred material for forming the honeycomb filter being cordierite in col. 3, lines 41-43. However, Gadkaree et al. explicitly teaches forming the honeycomb filter from other ceramic materials including a mixture of cordierite and silicon carbide or silicon nitride in column 3, lines 31-39. The fact that Gadkaree et al. teaches cordierite being a preferred embodiment does not preclude one of ordinary skill in the art from recognizing that the other disclosed ceramic materials can be used to form the honeycomb filter. Furthermore, while Gadkaree et al. is silent as to the specific method used to produce the honeycomb filter having a cordierite phase and a phase of silicon nitride or silicon carbide, one of ordinary skill in the art at the time the invention was made would have recognized from the disclosure that the honeycomb body could have been formed by

mixing cordierite and either silicon nitride or silicon carbide together at any weight proportion.

With regard to Applicants' arguments regarding the Claussen et al. reference, the Examiner agrees that Claussen teaches the preferred additives being combinations of the ceramic powders disclosed in col. 1, lines 42-62. However, the Claussen et al. disclosure is not limited to only combinations of the disclosed ceramic additives. Specifically, since Claussen et al. uses the conjunction "and/or" in the recitation of the various ceramics that can be used to form the additive, an embodiment wherein the additive is formed from any single one of the recited ceramics is within the scope of the Claussen et al. teaching. Stated differently, since the conjunctions connecting the various additive compounds includes an "or" recitation, the additive is disclosed as being any one the recited ceramics. Therefore, the Claussen et al. disclosure is not limited to a multiphase ceramic comprising at least two additive phases. Additionally, as noted above, the recitation of a preferred embodiment does not preclude one of ordinary skill in the art from recognizing that the other disclosed embodiments may likewise be employed.

With regard to Applicants' argument that Cleveland does not disclose the weight percentages of the cordierite and silicon nitride in the ceramic material, the Examiner notes that Cleveland explicitly teaches the ceramic material having the formula disclosed in col. 3, lines 1-5. Specifically, Cleveland teaches the ceramic comprising 50-

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80 mole percent silicon nitride and 20 to 50 mole percent cordierite. While the disclosure does not explicitly recite the weight percentages of the two phases, one of ordinary skill in the art could readily calculate the weight percentages from the mole percentages. For example, where the ceramic is formed of 50 mole percent silicon nitride and 50 mole percent cordierite, one of ordinary skill in the art could calculate the ceramic material to contain 19.3 weight percent silicon nitride and 80.7 weight percent cordierite. From the formulas recited in col. 3, lines 1-5, the molecular weight silicon nitride can be calculated to be  $3 \times 28.086 + 4 \times 14.0067 = 140.285$  and the molecular weight of cordierite can be calculated to be  $2 \times 24.305 + 2 \times 15.9994 + 4 \times 26.9185 + 6 \times 15.9994 + 5 \times 28.086 + 10 \times 15.9994 = 584.703$ . Therefore, for the ceramic wherein each phase comprises 50 mole percent, the weight percent of silicon nitride can be calculated to be  $140.285 / (140.285 + 584.703) = 0.193 = 19.3$  percent. The weight percentage of cordierite can therefore be calculated to be  $100 \text{ percent} - 19.3 \text{ percent} = 80.7 \text{ percent}$ . Therefore, Cleveland is seen as teaching the specific weight percentages of the cordierite and silicon nitride in the ceramic material.

### ***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gadkaree et al. in view of Claussen et al.

With regard to claims 1-6, Gadkaree et al. discloses a multicellular honeycomb structure (10) composed of a ceramic material comprising a non-oxide polycrystalline phase and a cordierite phase, the non-oxide polycrystalline phase being selected from the group consisting of carbides, nitrides, and borides, wherein the non-oxide polycrystalline phase is polycrystalline silicon carbide or silicon nitride in Fig. 1 and col. 2, line 50 to col. 3, line 43. Gadkaree et al. explicitly discloses the ceramic material being a combination of a non-oxide polycrystalline phase and a cordierite phase in col. 3, lines 24-43.

Gadkaree et al. does not disclose the non-oxide polycrystalline phase constituting 10-70 percent by weight with the remainder of the ceramic material constituting the cordierite phase or the non-oxide polycrystalline phase having a particle aspect ratio of less than 3.

Claussen et al. discloses a similar ceramic material wherein the non-oxide polycrystalline phase constitutes 30 percent by weight and the cordierite phase constitutes the remaining 70 percent, wherein the non-oxide polycrystalline phase is formed from silicon carbide and silicon nitride powders in col. 1, line 5 to col. 3, line 2. Since the non-oxide polycrystalline phase is disclosed as being formed from powders, the non-oxide polycrystalline phase is seen as having a particle aspect ratio of less than

3 since the term "powders" customarily means particles having a substantially spherical shape.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the ceramic material of Claussen et al. into the multicellular honeycomb structure of Gadkaree et al. to provide a honeycomb structure having improved heat blocking and mechanical properties, as suggested by Clausen et al. in col. 1, lines 25-29.

With regard to claims 7-9, Gadkaree et al. discloses the honeycomb having an open porosity of 45 percent and a median pore size between 0.5 and 15 micrometers in col. 3, lines 9-22.

4. Claims 10-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gadkaree et al. in view of Claussen et al.

With regard to claims 10-17, Gadkaree et al. discloses a filter for trapping and combusting diesel exhaust particulates comprising a wall flow honeycomb body (10) composed of a porous ceramic material and having a plurality of parallel end-plugged cell channels (12) traversing the body from a frontal inlet to an outlet end thereof, wherein the ceramic material comprises a non-oxide polycrystalline phase and a cordierite phase, the non-oxide polycrystalline phase being selected from the group consisting of carbides, nitrides, and borides, wherein the non-oxide polycrystalline

phase is polycrystalline silicon carbide or silicon nitride, and wherein the filter has an open porosity of 45 percent and a median pore size between 0.5 and 15 micrometers in Fig. 1 and col. 2, line 50 to col. 3, line 43. Gadkaree et al. explicitly discloses the ceramic material being a combination of a non-oxide polycrystalline phase and a cordierite phase in col. 3, lines 24-43.

Gadkaree et al. does not disclose the non-oxide polycrystalline phase constituting 10-70 percent by weight with the remainder of the ceramic material constituting the cordierite phase.

Claussen et al. discloses a similar ceramic material wherein the non-oxide polycrystalline phase constitutes 30 percent by weight and the cordierite phase constitutes the remaining 70 percent in col. 1, line 5 to col. 3, line 2.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the ceramic material of Claussen et al. into the multicellular honeycomb structure of Gadkaree et al. to provide a honeycomb structure having improved heat blocking and mechanical properties, as suggested by Clausen et al. in col. 1, lines 25-29.

With regard to claim 18, Claussen et al. discloses the non-oxide polycrystalline phase being formed from silicon carbide or silicon nitride powders in col. 1, line 5 to col. 3, line 2. Since the non-oxide polycrystalline phase is disclosed as being formed from powders, the non-oxide polycrystalline phase is seen as having a particle aspect ratio of



less than 3 since the term "powders" customarily means particles having a substantially spherical shape.

With regard to claims 19-22, Gadkaree et al. and Claussen et al. do not explicitly disclose the filter exhibiting a mean coefficient of thermal expansion of between 20-45  $\times 10^{-7}/^{\circ}\text{C}$  or a four-point modulus of rupture as measured on a cellular bar of at least 300 pounds per square inch (psi).

However, since the filter element of Gadkaree et al. and Claussen et al. is formed from the same material and has the same porosity and pore size as the instantly claimed filter, the filter of Gadkaree et al. and Claussen et al. will inherently possess the same mechanical properties as the instantly claimed filter.

5. Claims 23-27 and 29-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gadkaree et al. in view of Claussen et al.

With regard to claims 23-27, 29-32, 34, and 35, Gadkaree et al. discloses a diesel particulate filter comprising a plugged wall-flow honeycomb filter body (10) composed of porous ceramic material and comprising a plurality of parallel end-plugged cell channels (12) traversing the body from a frontal inlet to an outlet end thereof, wherein the honeycomb body is composed of a composite ceramic having a non-oxide polycrystalline phase and an oxide phase, the non-oxide polycrystalline phase being selected from the group consisting of carbides, nitrides, and borides, wherein the non-

oxide polycrystalline phase is polycrystalline silicon carbide or silicon nitride, wherein the oxide phase is magnesium aluminosilicate, cordierite, lithium aluminum silicate, polycrystalline silicon carbide, or polycrystalline silicon nitride, and wherein the filter has an open porosity of 45 percent and a median pore size between 0.5 and 15 micrometers in Fig. 1 and col. 2, line 50 to col. 3, line 43. Gadkaree et al. explicitly discloses the ceramic material being a combination of a non-oxide polycrystalline phase and a lithium aluminum silicate phase in col. 3, lines 24-43.

Gadkaree et al. does not disclose the non-oxide polycrystalline phase constituting 10-70 percent by weight with the remainder of the ceramic material constituting the oxide phase or the filter exhibiting a mean coefficient of thermal expansion of between  $20-45 \times 10^{-7}/^{\circ}\text{C}$  or a four-point modulus of rupture as measured on a cellular bar of at least 300 pounds per square inch (psi).

Claussen et al. discloses a similar ceramic material wherein the non-oxide polycrystalline phase constitutes 30 percent by weight and the cordierite phase constitutes the remaining 70 percent in col. 1, line 5 to col. 3, line 2.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the ceramic material of Claussen et al. into the filter of Gadkaree et al. to provide a honeycomb structure having improved heat blocking and mechanical properties, as suggested by Clausen et al. in col. 1, lines 25-29.

Since the filter element of Gadkaree et al. and Claussen et al. is formed from the same material and has the same porosity and pore size as the instantly claimed filter,

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the filter of Gadkaree et al. and Claussen et al. will inherently possess the same mechanical properties as the instantly claimed filter.

With regard to claim 33, Claussen et al. the non-oxide polycrystalline phase being formed from silicon carbide or silicon nitride powders in col. 1, line 5 to col. 3, line 2. Since the non-oxide polycrystalline phase is disclosed as being formed from powders, the non-oxide polycrystalline phase is seen as having a particle aspect ratio of less than 3 since the term "powders" customarily means particles having a substantially spherical shape.

6. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gadkaree et al. and Claussen et al. as applied to claim 27 above, and further in view of Talmy et al.

Gadkaree et al. and Claussen et al. do not disclose the oxide phase being an alkaline earth aluminum silicate selected from the group consisting of calcium aluminum silicate and barium aluminum silicate.

Talmy et al. discloses a similar ceramic material wherein the oxide phase is barium aluminum silicate in col. 1, line 14 to col. 5, line 60.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the barium aluminum silicate of Talmy et al. for the oxide phase of Gadkaree et al. and Claussen et al. to provide a diesel exhaust particulate filter having a high refractoriness and low thermal expansion, as suggested

by Talmy in col. 1, lines 14-24.

7. Claims 1-4 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gadkaree et al. in view of Cleveland.

With regard to claims 1-4 and 6, Gadkaree et al. discloses a multicellular honeycomb structure (10) composed of a ceramic material comprising a non-oxide polycrystalline phase and a cordierite phase, the non-oxide polycrystalline phase being selected from the group consisting of carbides, nitrides, and borides, wherein the non-oxide polycrystalline phase is polycrystalline silicon carbide or silicon nitride in Fig. 1 and col. 2, line 50 to col. 3, line 43. Gadkaree et al. explicitly discloses the ceramic material being a combination of a non-oxide polycrystalline phase and a cordierite phase in col. 3, lines 24-43.

Gadkaree et al. does not disclose the non-oxide polycrystalline phase constituting 10-70 percent by weight with the remainder of the ceramic material constituting the cordierite phase or the non-oxide polycrystalline phase having a particle aspect ratio of less than 3.

Cleveland discloses a similar ceramic material wherein the non-oxide polycrystalline phase constitutes 20 percent by weight and the cordierite phase constitutes the remaining 80 percent, wherein the non-oxide polycrystalline phase is formed from silicon nitride powders in col. 1, line 9 to col. 3, line 43. Cleveland discloses the ceramic material comprising 50 mole percent silicon nitride and 50 mole percent

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cordierite in col. 3, lines 1-5. Converting to weight percents gives the ceramic material comprising 20 weight percent silicon nitride and 80 weight percent cordierite. Since the non-oxide polycrystalline phase is disclosed as being formed from powders, the non-oxide polycrystalline phase is seen as having a particle aspect ratio of less than 3 since the term "powders" customarily means particles having a substantially spherical shape.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the ceramic material of Cleveland into the multicellular honeycomb structure of Gadkaree et al. to provide a honeycomb structure having high mechanical strength and low thermal expansion, as suggested by Cleveland in col. 1, lines 9-55.

With regard to claims 7-9, Gadkaree et al. discloses the honeycomb having an open porosity of 45 percent and a median pore size between 0.5 and 15 micrometers in col. 3, lines 9-22.

8. Claims 10-15 and 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gadkaree et al. in view of Cleveland.

With regard to claims 10-15 and 17, Gadkaree et al. discloses a filter for trapping and combusting diesel exhaust particulates comprising a wall flow honeycomb body (10) composed of a porous ceramic material and having a plurality of parallel end-plugged cell channels (12) traversing the body from a frontal inlet to an outlet end

thereof, wherein the ceramic material comprises a non-oxide polycrystalline phase and a cordierite phase, the non-oxide polycrystalline phase being selected from the group consisting of carbides, nitrides, and borides, wherein the non-oxide polycrystalline phase is polycrystalline silicon carbide or silicon nitride, and wherein the filter has an open porosity of 45 percent and a median pore size between 0.5 and 15 micrometers in Fig. 1 and col. 2, line 50 to col. 3, line 43. Gadkaree et al. explicitly discloses the ceramic material being a combination of a non-oxide polycrystalline phase and a cordierite phase in col. 3, lines 24-43.

Gadkaree et al. does not disclose the non-oxide polycrystalline phase constituting 10-70 percent by weight with the remainder of the ceramic material constituting the cordierite phase.

Cleveland discloses a similar ceramic material wherein the non-oxide polycrystalline phase constitutes 20 percent by weight and the cordierite phase constitutes the remaining 80 percent, wherein the non-oxide polycrystalline phase is formed from silicon nitride powders in col. 1, line 9 to col. 3, line 43. Cleveland discloses the ceramic material comprising 50 mole percent silicon nitride and 50 mole percent cordierite in col. 3, lines 1-5. Converting to weight percents gives the ceramic material comprising 20 weight percent silicon nitride and 80 weight percent cordierite.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the ceramic material of Cleveland into the multicellular honeycomb structure of Gadkaree et al. to provide a honeycomb structure

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having high mechanical strength and low thermal expansion, as suggested by Cleveland in col. 1, lines 9-55.

With regard to claim 18, Cleveland discloses the non-oxide polycrystalline phase being formed from silicon carbide or silicon nitride powders in col. 1, line 9 to col. 3, line 43. Since the non-oxide polycrystalline phase is disclosed as being formed from powders, the non-oxide polycrystalline phase is seen as having a particle aspect ratio of less than 3 since the term "powders" customarily means particles having a substantially spherical shape.

With regard to claims 19-22, Gadkaree et al. and Cleveland do not explicitly disclose the filter exhibiting a mean coefficient of thermal expansion of between  $20-45 \times 10^{-7}/^{\circ}\text{C}$  or a four-point modulus of rupture as measured on a cellular bar of at least 300 pounds per square inch (psi).

However, since the filter element of Gadkaree et al. and Cleveland is formed from the same material and has the same porosity and pore size as the instantly claimed filter, the filter of Gadkaree et al. and Cleveland will inherently possess the same mechanical properties as the instantly claimed filter.

9. Claims 23-27, 29, 30, and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gadkaree et al. in view of Cleveland.

With regard to claims 23-27, 29, 30, 32, 34, and 35, Gadkaree et al. discloses a diesel particulate filter comprising a plugged wall-flow honeycomb filter body (10) composed of porous ceramic material and comprising a plurality of parallel end-plugged cell channels (12) traversing the body from a frontal inlet to an outlet end thereof, wherein the honeycomb body is composed of a composite ceramic having a non-oxide polycrystalline phase and an oxide phase, the non-oxide polycrystalline phase being selected from the group consisting of carbides, nitrides, and borides, wherein the non-oxide polycrystalline phase is polycrystalline silicon carbide or silicon nitride, wherein the oxide phase is magnesium aluminosilicate, cordierite, lithium aluminum silicate, polycrystalline silicon carbide, or polycrystalline silicon nitride, and wherein the filter has an open porosity of 45 percent and a median pore size between 0.5 and 15 micrometers in Fig. 1 and col. 2, line 50 to col. 3, line 43. Gadkaree et al. explicitly discloses the ceramic material being a combination of a non-oxide polycrystalline phase and a lithium aluminum silicate phase in col. 3, lines 24-43.

Gadkaree et al. does not disclose the non-oxide polycrystalline phase constituting 10-70 percent by weight with the remainder of the ceramic material constituting the oxide phase or the filter exhibiting a mean coefficient of thermal expansion of between  $20-45 \times 10^{-7}/^{\circ}\text{C}$  or a four-point modulus of rupture as measured on a cellular bar of at least 300 pounds per square inch (psi).

Cleveland discloses a similar ceramic material wherein the non-oxide polycrystalline phase constitutes 20 percent by weight and the oxide phase constitutes the remaining 80 percent, wherein the non-oxide polycrystalline phase is formed from



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silicon nitride powders, and wherein the oxide phase is magnesium aluminum silicate (cordierite) in col. 1, line 9 to col. 3, line 43. Cleveland discloses the ceramic material comprising 50 mole percent silicon nitride and 50 mole percent cordierite in col. 3, lines 1-5. Converting to weight percents gives the ceramic material comprising 20 weight percent silicon nitride and 80 weight percent cordierite.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the ceramic material of Cleveland into the filter of Gadkaree et al. to provide a honeycomb structure having improved heat blocking and mechanical properties, as suggested by Cleveland in col. 1, lines 9-55.

Since the filter element of Gadkaree et al. and Cleveland is formed from the same material and has the same porosity and pore size as the instantly claimed filter, the filter of Gadkaree et al. and Cleveland will inherently possess the same mechanical properties as the instantly claimed filter.

With regard to claim 33, Cleveland discloses the non-oxide polycrystalline phase being formed from silicon carbide or silicon nitride powders in col. 1, line 9 to col. 3, line 43. Since the non-oxide polycrystalline phase is disclosed as being formed from powders, the non-oxide polycrystalline phase is seen as having a particle aspect ratio of less than 3 since the term "powders" customarily means particles having a substantially spherical shape.

10. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gadkaree et al. and Cleveland as applied to claim 27 above, and further in view of Talmy et al.

Gadkaree et al. and Cleveland do not disclose the oxide phase being an alkaline earth aluminum silicate selected from the group consisting of calcium aluminum silicate and barium aluminum silicate.

Talmy et al. discloses a similar ceramic material wherein the oxide phase is barium aluminum silicate in col. 1, line 14 to col. 5, line 60.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the barium aluminum silicate of Talmy et al. for the oxide phase of Gadkaree et al. and Cleveland to provide a diesel exhaust particulate filter having a high refractoriness and low thermal expansion, as suggested by Talmy in col. 1, lines 14-24.

### ***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (703) 308-6240. The examiner can normally be reached on Tuesday - Friday (7:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (703) 308-1261. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Jason M. Greene  
Examiner  
Art Unit 1724



jmg  
November 7, 2003

DUANE SMITH  
PRIMARY EXAMINER

  
10-12-03